



Atty. Dkt. No. 017700-0149

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Naoki AYAI et al

Title: METHOD OF MANUFACTURING  
OXIDE SUPERCONDUCTING WIRE,  
OXIDE SUPERCONDUCTING WIRE,  
SUPERCONDUCTING COIL AND  
SUPERCONDUCTING APPARATUS

Appl. No.: 09/869,701

Filing Date: 07/03/01

Examiner: Andrew T. Piziali

Art Unit: 1775

#6/A  
KWO  
12-4-08

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DEC 03 2002

**TC 1700**

**AMENDMENT IN REQUEST FOR RECONSIDERATION**  
**UNDER 37 C.F.R. § 1.111**

Commissioner for Patents  
Box Non-Fee Amendment  
Washington, D.C. 20231

Sir:

In reply to the Office Action mailed August 30, 2002, please amend the above identified application as follows:

**IN THE WRITTEN DESCRIPTION**

On page 1, paragraph beginning at line 20, delete and replace as follows:

AZ  
In general, a sufficient length is required for an oxide superconducting wire employed in a practical superconducting apparatus. In order to manufacture a cable conductor having a capacity of at least 100 megawatts (MW) as a practical superconducting cable, for example, hundreds of oxide superconducting wires exhibiting a unit length of about 5 km as the final length of the superconducting cable are required. In this case, a wire (diameter: 0.9 mm, critical current: 20 A, temperature: 77 K) formed by bismuth oxide superconductor filaments coated with silver is employed as the oxide superconducting wire, for example.

On page 2, paragraph beginning at line 4, delete and replace as follows:

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At the current level of the technique of manufacturing an oxide superconducting wire, however, only a wire formed by bismuth oxide superconductor filaments coated with silver having a unit length of about several 100 m is manufactured. When the oxide superconducting wire of such a unit length has a single defective portion, the entire oxide superconducting wire of about several 100 m is regarded as defective, to disadvantageously result in a low manufacturing yield. Unless a technique of manufacturing an elongated oxide superconducting wire is developed, therefore, it is impossible at present to apply the current technique to the aforementioned practical superconducting apparatus. This is one of the primary factors for delay in the application of superconducting apparatus, which is an innovative technique, to industry and practical application thereof.

On page 2, paragraph beginning at line 17, delete and replace as follows:

If a wire having a large unit length can be manufactured by connecting relatively short oxide superconducting wires with each other in order to implement the aforementioned superconducting cable having a capacity of at least 100 MW or a superconducting magnet employed for a magnetic field generator, it is possible to prepare a prototype apparatus for applying a superconducting apparatus to industry. Further, it is possible to understand the merits of the superconducting apparatus through the prepared prototype apparatus for progress in practical application.

On page 2, paragraph beginning at line 25, delete and replace as follows:

However, the critical current of an oxide superconducting wire is disadvantageously reduced due to influence by strain resulting from deformation such as bending or tension. When end portions of oxide superconducting wires having a small unit length are superposed for connecting the oxide superconducting wires with each other by brazing or soldering, for example, the wires are bent through a guide roller or the like in the process of manufacturing a superconducting cable or a superconducting magnet and the critical current is reduced due to bending strain applied to the wires. This is because the junction formed by superposing the end portions with each other is hardly bent while the remaining portions are readily bent. Hence an end of the junction is bent with a bending radius smaller than the radius of the guide roller or the like when the end of the junction is bent through the guide roller or the like. As a result, a strain larger than an allowable bending strain for allowing the



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 017700-0149

In re patent application of

Naoki AYAI et al.

Group Art Unit: 1775

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Examiner: Andrew T. Piziali

Filing Date: 07/03/01

For: METHOD OF MANUFACTURING OXIDE SUPERCONDUCTING WIRE, OXIDE  
SUPERCONDUCTING WIRE, SUPERCONDUCTING COIL AND SUPERCONDUCTING  
APPARATUS

CERTIFICATE OF MAILING BY EXPRESS MAIL

RECEIVED

Commissioner for Patents  
Washington, D.C. 20231

DEC 03 2002

TC 1/00

Sir:

I hereby certify that the following paper(s) and/or fee along with any attachments referred to or identified as being attached or enclosed are being deposited with the United States Postal Service as Express Mail (Express Mail Label No. EV060041740US) under 37 C.F.R. § 1.10 on the date of deposit shown below with sufficient postage and in an envelope addressed to the Commissioner for Patents, Washington D.C. 20231.

1. Amendment and Request for Reconsideration Under 37 C.F.R. § 1.111
2. Marked-up copy of Amendment and Request for Reconsideration Under 37 C.F.R. § 1.111
3. Postcard

Respectfully submitted,

November 27, 2002

Date

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